

Appl. No. 09/723,366
Amdt. Dated June 24, 2005
Reply to Office action of February 25, 2005

APP 1276

Listing of Claims

Claims 1-16 (canceled)

Claim 17 (currently amended) A system for providing a soft handoff of a mobile from a serving base station to a target base station in an Internet Protocol based code division multiple access network, wherein said base stations are autonomous and without a centralized network entity that distributes user traffic to both the serving base station and the target base station, said system comprising

means at said serving base station for combining upper layer packets with data at ~~one-layer~~ the link-layer to produce lower layer link-layer packets, for adding a label to said lower layer link-layer data packets to produce a remote layered link-layer data packet, and for adding a header to said remote layered link-layer data packet to produce an encapsulated Internet Protocol packet including a copy of said lower layer link-layer data packet unit;

means at said serving base station for transmitting a data packet unit including said lower layer link-layer data packets from said serving base station to said mobile;

means at said serving base station for transmitting said encapsulated remote layered data packet including said remote layered ~~lower-layer~~ link-layer data packets to said target base station;

means at said target base station for relaying said encapsulated remote layered data packet to said mobile without repeating the processing done at said serving base station for constructing said lower layer link-layer data packets; and

means at said mobile for combining the lower layer link-layered packets of said copy of said data packet unit from said target base station with the lower layer link-layer packets of said data packet from said serving base station to effectuate the soft handoff.

Claim 18 (previously amended) A method for soft handoff of a mobile from a serving base station to a target base station in an Internet Protocol (IP) wireless packet switched network wherein said base stations are autonomous without a centralized control, said method comprising the steps of

at the serving base station processing packets in a ~~protocol-layer~~ the link-layer to produce a remote layered lower layer link-layer data packet that the target base station can use as if generated at the target base station and including lower layer link-layer data packets and adding an IP header to the remote layered ~~lower-layer~~ link-layer data packet so as to create an IP encapsulated remote link- layer data packet;

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transmitting ~~a~~ an IP encapsulated link-layer data packet unit including lower layer data packets from the serving base station to said mobile;

transmitting from said serving base station said encapsulated ~~remote-layered link-layer~~ data packet to said target base station;

said target base station removing said remote layered ~~lower-layer link-layer~~ data packet from said IP encapsulated remote layered data packet and relaying said removed remote layered ~~lower-layer link-layer~~ data packet to said mobile; and

combining at said mobile the ~~lower-layer link-layer~~ packets of said data packet from said serving base station and the ~~lower-layer link-layer~~ data packets from said removed remote layered data packet from said target base station.

Claim 19 (canceled)

Claim 20 (previously amended) A method for soft handoff of a mobile from a serving base station to a target base station in an internet Protocol (IP) based network wherein said serving and target base stations are autonomous without a centralized control, said method comprising the steps of:

transmitting over air a data packet including lower layer link-layer data packets from said serving base station to said mobile;

at said serving base station combining upper layer packets with data at ~~one~~ the link-layer to produce lower layer link-layer packets, adding a label to said lower layer link-layer packets to produce a remote layered data packet, and adding an IP header to said remote layered data packet to produce an encapsulated IP packet including a copy of said data packet;

sending from said serving base station to said target base station said encapsulated IP packet including said remote layered data packet through a cross layer tunnel between said base station and said target base station;

said target base station removing said remote layered packet from said encapsulated IP packet and relaying said remote layer data packet to said mobile; and

combining at said mobile the lower layer link-layer data packets of said data packet from said serving base station and the lower layer link-layer data packets of said remote layer data packet from said target base station.

Claim 21 (currently amended) The method in accordance with claim 20 wherein said lower layer link-layer data packets are layer-2 packets and wherein said step of combining at said mobile comprises the steps of

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comparing the ~~lower layer data~~ layer-2 packets received from the serving base station with the ~~lower level data~~ layer-2 packets of the remote layer data received from the target base station;

if said step of comparing indicates a match, then combining the data from said serving base station and the ~~data~~ data from said target base station; and

if said step of comparing does not indicate a match, then further comparing N data blocks from said serving base station with data from said target base station until a match is obtained

Claim 22 (new) The system in accordance with claim 17 wherein said means at said serving base station for combining upper layer packets with data at the link- layer to produce lower layer link-layer packets includes means for creating layer-2 packets from upper layer packets and putting a copy of each layer-2 packet in an upper layer packet.

Claim 23 (new) The method in accordance with claim 18 wherein said step of processing packets in the link- layer at said serving base station to produce a remote layered lower data packet comprises creating layer-2 packets from upper layer packets and putting a copy of each layer-2 packet in an upper layer packet.